

a later edition may see all necessary changes made in conformity with this beginning."

NEW YORK BOTANICAL GARDEN

A. B. STOUT

The Years of John Torrey

John Torrey. A story of North American botany. By Andrew Denny Rodgers, III. 352 pp. Princeton University Press. 1942. \$3.75.

The journey of the Astorians during 1811 and 1812 began a notable period in the exploration of western North America;— notable for many reasons, among which we may reckon the presence of two well known naturalists. Subsequent expeditions (mostly under the auspices of the United States Government) likewise included natural history among the fields to be explored; the collection and description of the plants and animals and other products of the country supplemented their purely geographical work. Specimens flowed eastward in an increasing tide for identification and preservation. Fortunately the prolixity of nature and the zeal of collectors met their match in a few great naturalists who stayed at home. Many North American plants went to William Jackson Hooker at Kew; but the bulk of them during many years were classified by John Torrey.

Torrey brought to this work acuity of perception and a talent for organization (without which, indeed, it would not have been brought to him). Though he was not himself a field botanist, though he saw the western plants growing in their native places only after his work was done, he labored to good purpose; his classification has formed an adequate skeleton on which to drape the flesh of later research. His was a purely descriptive science. Inquiries into the physiology of plants, into causes and first principles, even into the Darwinian theories when they appeared, seem to have interested him little. But in the scope of his knowledge, in his mastery of detail, in his grasp of relationships, Torrey is entitled to first rank among the leaders in American botany.

Recognition was not slow in coming to such work, and both labor and glory grew at the geometrical rate of the traditional snowball. In his later years Torrey maintained a large correspondence with botanists all over the world. He was instrumental in the establishment of the United States National Herbarium, and was one

of the first "corporators" of the National Academy of Science. From a group of young botanists inspired by his leadership grew the Torrey Botanical Club.

From these remarks it is evident that a biography of John Torrey must indeed be a "story of North American botany." Some readers of the present work may feel, however, that title and subtitle would better fit the contents if they were interchanged. Mr. Rodgers has given us what is essentially a synopsis of the botanical exploration of North America, with biographical details of the principal American (and some foreign) botanists of the nineteenth century;—all against a background of extensive quotations from Torrey's letters. Some will think that a biographer should have made a greater effort to penetrate this mass of detail and to portray the human person within; others will doubtless maintain that the letters tell the story. It is true nevertheless that the work is something of a hodge-podge, the main theme lost in the accompaniment. This is the more to be regretted since, apart from his importance to botany, Torrey was an engaging person; naive, religious, unselfish, modest, shy,—and wholly lovable.

But there is another reason why this reviewer at least thinks that the author should have written with a different emphasis. Mr. Rodgers is not a botanist, and his attempts to evaluate the place of Torrey in the history of botany are not to be taken seriously. He assures us, for instance, that on two separate occasions American systematic botany was "born"; and it is rather astounding to read that Mendel was one of the "great theorists, [who] built on the vast taxonomic data gathered and organized by leaders such as Torrey." We see here a tendency evident in much modern biography: to indulge in an orgy of hero-worship which covers a lack of critical thinking. In the same tradition are the unfortunate attempts at "fine writing." As a substitute for creative literature we are offered perfervid periods.

In spite of such shortcomings, the book has real value, particularly as a reference work for those interested in American systematic botany. The data are copious and accurate, and the student will find useful notes on sources. There is also a "bibliography" of Torrey's works, from which dates of publication and other critical bibliographical materials have unfortunately been omitted.

Style, after all, is a matter of taste; many will disagree with the present reviewer in his strictures. But errors of grammar, punctuation, and syntax are in a different category; they are all too numerous in this work, and contribute not a little to the peculiarity of the style. One could wish that the editor of a University Press could find time to attend to such small matters.

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H. W. RICKETT

Plant Breeding

Methods of Plant Breeding. By H. K. Hayes and F. R. Immer. McGraw-Hill. 1942. \$4.00.

At a time like the present when it behooves every person to examine his own endeavors and ask himself what he is contributing to the nation's war effort and to the cause of humanity this book seems particularly pertinent and useful. It clearly serves the double purpose of being a working guide for investigators in its own field and an excellent review of the accomplishments and possibilities of plant breeding for others.

Methods of Plant Breeding is a long book (well over four hundred pages), but the subject of plant breeding is one of tremendous consequence, and its accomplishments are already notable. The first chapter is a brief statement of the rôle of plant breeding. Chapters II and III cover respectively the genetic and cytogenetic basis of breeding methods and the mode of reproduction in relation to plant breeding. The latter chapter includes a good practical discussion of the heterosis question. In view of recent work of Dobzhansky and others indicating the close association between appearance and degree of hybrid vigor and the method of reproduction this arrangement seems particularly good. Chapter IV gives details of methods for selfing and crossing the principal economic crops. It is chapters like this one and later ones on the handling of data which gives the book its value as a working handbook. Chapters V, VI, and VII cover methods of breeding and Chapter VIII correlates them with practical problems of breeding for disease and insect resistance. Chapter XIII returns to this discussion of breeding for special characters. The intervening chapters are given over to summary discussions of the genetics of wheat, oats, barley, and flax. Chapters XIV and XV deal with breeding meth-